MSCFH, and instead utilized for hydrogen production. At about 82 mole% hydrogen in the flared gases, this resulted in about 417 MSCFH of additional hydrogen production. Also, the load to the first PSA unit was reduced from 100% to about 90% by shifting about 10% of the load, or about 0.63 SCFD, from the first PSA unit to the second PSA unit.

[0018] It is to be understood that the invention is not limited to the exact details of construction, operation, exact materials or embodiments shown and described, as obvious modifications and equivalents will be apparent to one skilled in the art. Accordingly, the invention is therefore to be limited only by the scope of the appended claims.

WE CLAIM:

1. A method of hydrogen recovery comprising the following steps:

forming a combined stream, the combined stream including at least a portion of a product stream from a steam reformer and at least a portion of an offgas stream from a refinery, wherein the portion of the offgas stream is taken from a feed stream for a first pressure swing adsorption unit;

passing at least a portion of the combined stream through a second pressure swing adsorption unit; and

recovering a high-purity hydrogen stream from the second pressure swing adsorption unit.

2. The method of claim 1, wherein the operating pressure of the steam reformer is set so as to allow the offgas stream to flow into and combine with the product stream from the steam reformer.

3. The method of claim 1, wherein the pressure of the product stream from the steam reformer is from about 280 psig to about 330 psig.

4. The method of claim 1, wherein the pressure of the offgas stream from the refinery is from about 280 psig to about 330 psig.

5. The method of claim 1, wherein the hydrogen recovery occurs in a refinery operation.

6. The method of claim 1, wherein the hydrogen recovery occurs in a petrochemical plant operation.

7. The method of claim 1, wherein the hydrogen recovery occurs in a natural gas processing plant operation.

8. The method of claim 1, wherein the steam reformer has a butane feed.

9. The method of claim 1, wherein the steam reformer has a propane feed.

10. The method of claim 1, whereby the load on the steam reformer is reduced.

11. The method of claim 1, whereby fuel gas consumption in a furnace for the steam reformer is reduced.

12. The method of claim 1, whereby the amount of refinery offgas burned as fuel is reduced.

13. The method of claim 1, whereby the amount of refinery offgas sent to flare is reduced.

14. The method of claim 1, whereby the load on the first PSA unit is reduced.

15. The method of claim 1, whereby the hydrocarbon content of tail gas from the second PSA unit is increased.

16. The method of claim 1, whereby the heating value of tail gas from the second PSA unit is increased.

17. A method of hydrogen recovery comprising the following steps:

forming a combined stream, the combined stream including at least a portion of a first stream and at least a portion of a second stream, wherein the portion of the first stream is taken from a feed stream for a first pressure swing adsorption unit, and wherein the portion of the second stream is taken from a feed stream for a second pressure swing adsorption unit;

passing at least a portion of the combined stream through at least one of the first and second pressure swing adsorption units; and

recovering a high-purity hydrogen stream from the pressure swing adsorption unit receiving the combined stream.

18. The method of claim 17, wherein the pressure of the first stream is from about 280 psig to about 330 psig.

19. The method of claim 17, wherein the pressure of the second stream is from about 280 psig to about 330 psig.

20. The method of claim 17, wherein the hydrogen recovery occurs in a refinery operation.

21. The method of claim 17, wherein the hydrogen recovery occurs in a petrochemical plant operation.

22. The method of claim 17, wherein the hydrogen recovery occurs in a natural gas processing plant operation.

23. The method of claim 17, whereby load on the first pressure swing adsorption unit is reduced.

24. The method of claim 17, whereby hydrocarbon content of a tail gas from the second pressure swing adsorption unit is increased.

25. The method of claim 17, whereby the heating value of tail gas from the second pressure swing adsorption unit is increased.